

Amendment and Response

Applicant: Robert-Christian Hagen et al.

Serial No.: 10/598,483

Filed: August 7, 2008

Docket No.: I431.175.101/FIN592PCT/US

Title: BASE SEMICONDUCTOR COMPONENT FOR A SEMICONDUCTOR COMPONENT STACK AND METHOD FOR THE PRODUCTION THEREOF

REMARKS

The following remarks are made in response to the Non-Final Office Action mailed April 14, 2009. Claims 1-14 have been previously cancelled without prejudice. Claims 15-34 were rejected. With this Response, claims 15-34 have been amended. Claims 15-34 remain pending in the application and are presented for reconsideration and allowance.

Claim Objections

The Examiner objected claims 16-18, 24, 26-28, and 31-33 for informalities.

With this Response, claims 16-18, 24, 26-28, and 31-33 have been amended as suggested by the Examiner so as to correct the identified informalities. As such, Applicant respectfully requests that the objections to claims 16-18, 24, 26-28, and 31-33 be withdrawn.

Claim Rejections under 35 U.S.C. § 112

Claims 15-24, 18, 25-28, and 30-33 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

With this Response, claims 15, 25, and 30 have been amended so as to clarify and correct terms identified by the Examiner as being unclear. Accordingly, Applicants submit that claims 15-24, 18, 25-28, and 30-33 are in definite form and respectfully request that the rejections of claims 15-24, 18, 25-28, and 30-33 under 35 U.S.C. § 112, second paragraph, be withdrawn.

In view of the above, claims 15-24, 18, 25-28, and 30-33 are believed to be in form for allowance. Therefore, Applicant respectfully requests that rejections to these claims under 35 U.S.C. § 112, second paragraph, be reconsidered, and that the rejections be removed and these claims be allowed.

Claim Rejections under 35 U.S.C. § 102

Claims 15-17, 20-21, 23, 29, and 34 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application Publication No. 2003/0042591 to Goller et al. ("Goller").

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Claims 15, 19, 22, and 24 were rejected under 35 U.S.C. § 102(b) as being anticipated by th U.S. Patent No. 6,291,259 to Chun (“Chun”).

Applicants respectfully submit that neither Goller nor Chun anticipate the base semiconductor component as defined by amended independent claim 15. Goller describes and electronic component 2 fastened to a top side of a flat carrier substrate 8, wherein a passive back side of semiconductor chip 4 is fastened to carrier substrate 8 so that active chip surface 41 faces away from carrier substrate 8 (Figure 3, paragraph 0030). In contrast, independent claim 15 defines **a semiconductor chip arranged on a wiring substrate, wherein an active upper side of the semiconductor chip faces toward the wiring substrate.**

Similarly, Chun describes a supporting member 21 on which a back side of a semiconductor chip 1 is mounted such that an upper surface faces away from supporting member 21 so that middle portions 4b of metal traces can be connect to chip pads 6 on the upper surface of semiconductor chip 1. Again, in contrast, independent claim 15 defines **a semiconductor chip arranged on a wiring substrate, wherein an active upper side of the semiconductor chip faces toward the wiring substrate.**

In view of the above, Applicants respectfully submit that neither Groller nor Chun anticipate the base semiconductor component as defined by amended independent claim 1. As such, Applicants respectfully request that the rejections of independent claim 15 under 35 U.S.C. § 102 over both Groller and Chun be withdrawn and that independent claim 15 be allowed.

Independent claims 29 and 34 each include limitations similar to those described above with respect to independent claim 15. As such, for at least reasons similar to those remarked upon above with respect to independent claim 15, Applicants respectfully submit that Groller also fails to anticipate the semiconductor component stack and base semiconductor component as respectively defined by independent claims 29 and 34. Accordingly, Applicants respectfully request that the rejections of independent claims 29 and 34 under 35 U.S.C. § 102 over Groller also be withdrawn and that independent claims 29 and 34 be allowed as well.

Since claims 16, 17, and 19-24 further define patentably distinct independent claim 15, Applicants respectfully request that the rejections of dependent claims 16, 17, 20, 21, and 23

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under 35 U.S.C. § 102 over Groller and that the rejections of dependent claims 19, 22, and 24 under 35 U.S.C. § 102 over Chun also be withdrawn and that dependent claims 16, 17, and 19-24 be allowed as well.

Claim Rejections under 35 U.S.C. § 103

Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Gollerin view of U.S. Patent Application Publication No. 2003/0111736 to Roeters et al. (“Roeters”).

Claims 30-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Goller and Roeters as applied to claim 18 above, and further in view of Chun.

Claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Goller, Roeters, and Chun as applied to claim 18 above, and further in view of U.S. Patent Application Publication No. 2003/0134450 to Lee (“Lee”).

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Goller in view of Chun.

Claims 26 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Goller and Chun as applied to claim 25 above, and further in view of U.S. Patent Application Publication No. 2002/0180061 to Caletka et al. (“Caletka”) and Chun.

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Goller and Chun as applied to claim 18 above, and further in view of Roeters and Lee.

Applicants respectfully submit that neither Goller nor Chun, either alone or in combination, teach or suggest the method of producing a base semiconductor component as defined by independent claim 25. As described above with respect to independent claim 15, both Goller and Chun teach a semiconductor chip having a rear side arranged on a substrate. As such, neither Goller nor Chun, either alone or in combination, teach or suggest **a stiff wiring carrier with a central semiconductor chip having an active upper side disposed on an upper side of the wiring carrier**, as defined by independent claim 25.

Similarly, neither Goller, Roeters, nor Chun, either alone or in combination teach or suggest the base semiconductor component as defined by independent claim 30. As described

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above, with respect to independent claim 15, both Goller and Chun teach a semiconductor chip having a rear side arranged on a substrate. As such, Goller in combination with Roeters and Chun fails to teach or suggest **a semiconductor chip arranged on a stiff wiring substrate, wherein an active upper side of the semiconductor chip faces toward the wiring substrate,** as defined by independent claim 30.

Goller teaches an arrangement in which an intermediate carrier 10 is positioned between contact bumps 12 of first and second semiconductor chips 4 and 6 so as to provide electrical connections between them as well as to carrier substrate 8 (Figure 3).. It would not be obvious to rearrange semiconductor chip 4 so that its active upper side 41 would face to carrier substrate 8 since the wiring function provided by intermediate carrier 10 would be lost. Similarly, it would not be obvious to rearrange semiconductor chip 1 of Chun so that its active upper surface would face toward supporting member 21, since contact pads 6 would not be accessible for connection to middle portions 4b of the metal traces

In view of the above, Applicants submit that independent claim 25 is not obvious over Goller in view of Chun, and that independent claim 30 is not obvious over Goller in view of Roeters, and further in view of Chun. Accordingly, Applicants respectfully request that the rejections of independent claims 25 and 30 under 35 U.S.C. § 103 be withdrawn and that independent claims 25 and 30 be allowed.

Claim 18 further defines patentably distinct independent claim 15, claims 26-28 further define patentably distinct independent claim 25, and claims 31-33 further define patentably distinct independent claim 30. As such, Applicants respectfully request that the rejections of dependent claims 18, 26-28, and 31-33 under 35 U.S.C. § 103 also be withdrawn and that dependent claims 18, 26-28, and 31-33 be allowed as well.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 15-34 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 15-34 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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